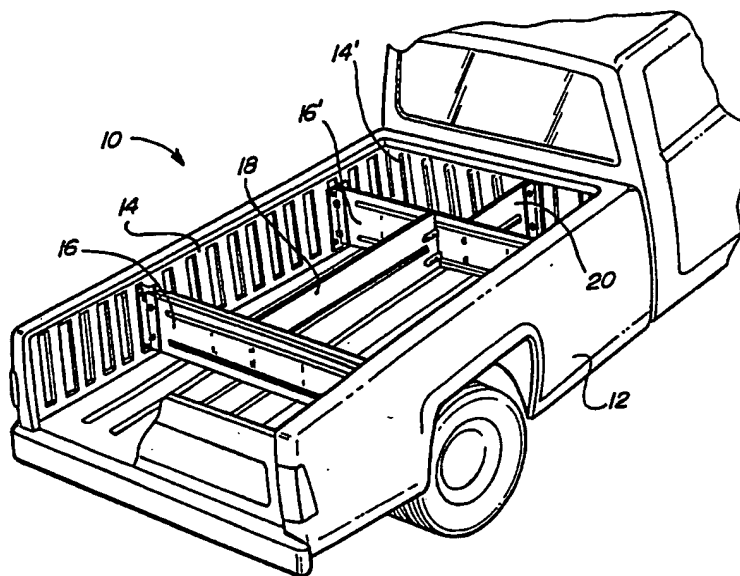




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| (51) International Patent Classification ⁵ : B60P 7/06 | A1 | (11) International Publication Number: WO 91/17066 (43) International Publication Date: 14 November 1991 (14.11.91) |
| (21) International Application Number: PCT/US91/03043 (22) International Filing Date: 3 May 1991 (03.05.91) (30) Priority data: 519,289 4 May 1990 (04.05.90) US (71)(72) Applicant and Inventor: WAYNE, Mark [US/US]; 29436 Briarbank Court, Southfield, MI 48034 (US). (74) Agent: GIFFORD, Ernest, I.; 280 North Woodward, Suite 400, Birmingham, MI 48009 (US). (81) Designated States: AT (European patent), BE (European patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), LU (European patent), NL (European patent), SE (European patent). | | Published <i>With international search report.</i> |

(54) Title: TRUCK BED DIVIDER SYSTEM**(57) Abstract**

A truck bed divider system for placement within the bed (10) of a truck and the like includes at least one primary divider (16) and at least one secondary divider (18, 20). The primary dividers (16) include brackets (26) at each end that provide a frictional fit against the interior side of the walls (14) of the bed (10) of the truck. By a slotted interrelationship, the primary dividers (16) are situated within the bed at their preferred positions and are thereafter adjusted by extending the brackets (26) outward relative to the divider body (22) to their maximum extent whereby they are pressed against the side of the bed and held thereto by tension, thus eliminating the need for fasteners. The secondary dividers (18, 20) are provided with hooks (42) at their ends and are interfitable between the primary dividers (16) by being hooked into slots (44) perpendicularly defined in the body (22) of the primary dividers (16). Both primary (16) and secondary dividers (18, 20) are preferably provided with shelf extensions (41) for the placement of shelves and the like thereupon.

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-1-

TRUCK BED DIVIDER SYSTEMBackground of the InventionI. Field of the Invention

5 The present invention relates generally to truck bed divider systems. More particularly, the present invention relates to a truck bed divider system comprising primary walls for frictional engagement with the interior walls of the pickup bed and secondary walls for slottable interplacement between the primary
10 walls.

II. Description of the Relevant Art

In recent years the great utility of the pickup truck has been recognized. The pickup truck, being as it is multi-functional and highly versatile,
15 offers the advantages of being usable to haul goods and, at the same time, being capable of hauling passengers in an interior cab environment comparable to the comforts known and appreciated in the average car.

One of the known disadvantages of the present truck bed is that, while serving very well the desired purpose of placement therein of large loads, it does not function particularly well when being utilized to ship and carry smaller goods. Unless the smaller goods are particularly heavy or include a flat underside,
20 they tend to shift and roll about, in that their motion is relatively unrestricted.

This situation is compounded by the fact that pickup trucks tend to deliver a relatively stiff ride. Every small bump or rut is felt in the truck, and the
30 bed, being uncushioned, receives these shocks directly. Anything not tied or weighted down moves in response to each jolt.

- 2 -

In an effort to minimize this characteristic, bed boxes have been utilized. These boxes typically comprise a box interfittable between the side walls and placeable against the front wall of the bed. The box conventionally has two doors on its top side, each being situated so as to open opposite the other. The box is generally lockable.

However, while providing some relief to the problem, these bed boxes tend to be rather expensive and not easy to fit in place within the pickup truck bed. And, because the bed box does not extend to the floor of the bed but rather leaves a space between the floor and the bottom of the box, it does not provide much space for carrying the desired goods. Additionally, the bed box is not usable once a bed cover or bed cap is fitted. When the bed is covered by either construction, there is no practical system for dividing the bed into usable compartments.

Accordingly, prior approaches to providing effective bed divider systems have failed to eliminate the problems commonly associated with pickup truck beds.

Summary of the Present Invention

The present invention provides a truck bed divider system for placement within the bed of a truck and the like that overcomes the problems associated with maximization of the utility of the pickup truck bed. While the divider system of the present invention is primarily directed at use in a pickup truck, its application may be extended to use in the commercial van or passenger van.

The truck bed divider system of the present invention provides a system that is easily placed in the truck bed and is easily removed. The divider system of the present invention is primarily directed

- 3 -

to use in a truck bed having a bed liner disposed therein where the liner has vertically corrugated sides as is commonly the case, although it may be used in any bed having corrugated or substantially planar interior wall surfaces.

The divider system fundamentally comprises two divider walls, a primary divider and a secondary divider. The primary divider abuts the interior wall surfaces, while the secondary divider is interfittable between the primary dividers. Of course, a single divider may act as both a primary divider if one end abuts an interior wall surface and the other end interlocks a primary divider.

The primary divider includes at each end a frictional-engagement bracket. The bracket fits into a recessed segment of the corrugated wall. In a preferred embodiment, by a slotted nut and bolt relationship, the placement of the bracket may be adjusted relative to the body of the divider and may be extended outwardly or inwardly as the situation requires for tight abutment against an interior wall surface of the bed. Once generally situated at the desired position within the pickup truck bed, the brackets are moved outwardly away from the body until seized tightly against the selected interior wall surfaces. The fasteners are then tightened to maintain this position. By the present system, the primary dividers do not require attachment to the walls of the bed by fasteners and the like, and may accordingly be easily removed.

The bolt of the primary divider fastener assembly preferably is an eyebolt, thus providing additional points of attachment for ropes or similar hold-down methods.

The body of the primary divider has perpendicularly defined therein a number of elongated

- 4 -

slots. The slots accomodate slotted hooks fitted at the ends of the secondary dividers. This construction provides for a fastener-free assembly of the secondary dividers relative to the primary dividers. Like the
5 primary dividers, the secondary dividers may be easily installed and removed.

The brackets fitted to the secondary dividers have slots axially defined therein to accomodate adjustment of the brackets with respect to the dividers
10 as may be necessary.

Both the primary and secondary dividers are preferably provided with elongated, axial shelf brackets. These brackets allow for selective placement thereupon of one or more shelves or cover assemblies.

15 As an alternate method of attachment of both the primary and secondary dividers, pivotable brackets are fitted to the interior surfaces of the walls or on the primary dividers. The brackets have slots defined therein and may be pivoted from an upright position to
20 release a divider to a lowered locked position whereby the divider is locked within the slot of the bracket.

As a possible option, the divider system of the present invention includes one or more section covers for placement over a subdivider section, thereby
25 providing protection and security for a selected section.

Other advantages and features of the present invention will become apparent from the following detailed description when read in conjunction with the
30 accompanying drawing.

Brief Description of the Drawing

The present invention will become more fully understood by reference to the following detailed description of the preferred embodiments of the present
35 invention when read in conjunction with the

- 5 -

accompanying drawing, in which like reference characters refer to like parts throughout the views and in which:

FIG. 1 is a perspective view of a pickup truck bed showing the divider system of the present invention in place therein;

FIG. 2 is a close-up exploded view of the principal attachment brackets and fasteners of the primary and secondary dividers according to the present invention;

FIG. 3 is a top view illustrating the primary divider of the present invention in place between two interior wall surfaces of a bed, partially shown;

FIG. 4 is an elevational side view illustrating the secondary divider of the present invention;

FIG. 5 is a perspective view illustrating an alternate method of attaching a divider according to the present invention;

FIG. 6 is a view taken along line 6-6 of Figure 5;

FIG. 7 is an additional alternate embodiment showing attachment of a divider;

FIG. 8 is a perspective view of yet another embodiment of attachment;

FIG. 9 illustrates an alternate system for locking a primary or secondary divider in place;

FIG. 10 illustrates a partial elevational side view showing the locking embodiment of FIG. 9 in its locked position;

FIG. 11 illustrates a box top construction for covering a divided segment; and

FIG. 12 is an elevated cut-away side view taken along line 12-12 of the box top construction illustrated in FIG. 11.

- 6 -

Detailed Description of the Preferred
Embodiment of the Present Invention

The drawing discloses the preferred embodiment of the present invention. While the configurations according to the illustrated embodiments are preferred, it is envisioned that alternate configurations of the present invention may be adopted without deviating from the invention as portrayed. The preferred embodiment is discussed hereafter.

Referring to Figure 1, a pickup truck, generally indicated as 10, includes a truck bed 12. Of course, in lieu of the pickup truck 10, a van (not shown) may be selected for use with the present invention.

Within the interior space of the bed 12 there are defined a plurality of interior wall surfaces 14, 14'. The surfaces 14, 14' are typically corrugated as shown or may be substantially smooth. Very often bed liners disclose the corrugated appearance. While primarily suitable for applications to beds having corrugated walls, the present invention may be employed in beds with smooth-walled construction.

Within the interior space of the bed 12 there are positioned a pair of primary dividers 16, 16' and a pair of secondary dividers 18, 20. Of course, the disposition of the dividers 16, 16', 18, 20 is only suggested, and the dividers 16, 16', 18, 20 may be fitted in alternate configurations from that illustrated.

Referring to Figure 2, a detailed perspective view of the preferred bracket-divider construction and relationship is illustrated. As may be understood, the primary divider 16 comprises a primary divider body 22 and a primary divider bracket 24. The body 22 is preferably composed of two portions as illustrated in the exploded view to accommodate the secondary divider brackets as will be described below.

- 7 -

A portion of the second divider 18 is illustrated. The divider 18 has fixed thereto an adjustable bracket 38 that preferably has a pair of slots 40, 40' axially defined therein. At one end of the bracket 38 is defined an attachment slot 42 for removable interattachment with any one of a number of slots 44, 44' defined in the primary divider body 22 of the primary divider 16.

The primary divider bracket 24 includes a channelled region 26 axially defined therealong. The channelled region 26 has defined therein a number of fastener receiving apertures 28, 28'. The body 22 has a flange region 30 for being slottingly fitted within the channelled region 26. A number of fastener slots 32, 32' are defined in the flange region 30. A nut 34 and bolt 36 are interconnected with the fastener aperture 28 and the fastener slot 32. The bolt 36 is preferably an eye bolt as illustrated for providing an optional fastening point for a rope or a tie down strap (not illustrated). This slotted construction allows for movement of the bracket 24 inwardly and outwardly relative the body 22.

Each of the dividers may be provided with one or more shelf-receiving brackets 41. The brackets 41 provide disposed thereon of a shelf, a box, or a cover as disclosed below with respect to Figures 11 and 12. The brackets 41 also strengthen the dividers.

Figure 3 illustrates the placement and adjustment of the primary divider 16 relative the interior surfaces of the walls of the bed 12.

With reference thereto, the bracket 24 is fixed in its position with respect to the body 22. Thereafter, an opposing bracket 24', is adjusted outwardly and away from the body 22 in the general direction of arrow "A" to frictionally engage the inner surface 14 of the bed 12. Once maximum friction is

- 8 -

achieved, the nut 24 and bolt 36 are tightened and the primary divider 16 is locked in place.

Referring to Figure 4, a raised elevational view of the secondary divider 18 is illustrated to reveal the placement of the brackets 38.

Referring to Figure 5, a perspective view of an alternate embodiment of a method of attaching the secondary divider 18 to the inner wall surface 14 is illustrated and comprises a slotted, elongated bracket member 46 fastened to the surface 14. Figure 6 is a sectional view of the assembly in place and interlocked according to a view taken along line 6-6 of Figure 5.

With reference to Figure 7, a simplified construction for frictionally engaging a bracketless secondary divider 18' with the inner surface 14 is illustrated. A channelled bracket 48 is positioned in a recessed portion of the corrugated wall and the divider 18' is thereafter positioned therein.

With reference to Figure 8, a modified bracket 38' is pivotably mounted on the divider 18 for attachment to the bracket 46 of the embodiment illustrated in Figure 5. This pivotable interattachment facilitates simplified locking and unlocking.

Figures 9 and 10 disclose still another alternate method of fixing the bracketless secondary divider 18' in place within the bed 12. According to this embodiment, a pivotable assembly 50 comprising a fixed plate 52 and a pivotable slotted arm 54 is illustrated. The bracketless divider 18' is positioned in its selected place and the arms 54 are pivotable to their perpendicular positions as illustrated in solid lines in Figure 10. The shadow lines illustrate the unlocked or folded position of the arms 54.

To provide protection from both theft and the weather, a cover 56 may be fitted over interrelated

- 9 -

dividers to cover a segment defined thereby as illustrated in Figures 11 and 12. One or more covers 56 may be hingedly fitted as selected or as is necessary.

5 Having described my invention, however, many modifications thereto will become apparent to those skilled in the art to which it pertains without deviation from the spirit of the invention as defined by the scope of the appended claims.

10 I claim:

- 10 -

CLAIMS

1 1. A truck bed divider system for dividing
2 the interior space of a vehicle bed into two or more
3 segments, said system comprising:

4 At least one primary divider, said primary
5 divider being removably interfittable between opposing
6 interior wall surfaces of said truck bed; and

7 means for slottingly and releasably engaging
8 said primary divider against said interior wall
9 surfaces.

1 2. The truck bed divider system of claim 1
2 wherein said means for releasably engaging provides for
3 frictional engagement.

1 3. The truck bed divider system of claim 2
2 further including:

3 at least one secondary divider removably
4 disposable between two spaced apart primary dividers;
5 and

6 means for engaging said secondary divider with
7 said primary divider.

1 4. The truck bed divider system of claim 3
2 further including at least one tertiary divider
3 removably disposable between said at least one primary
4 divider and said interior wall surface.

1 5. The truck bed divider system of claim 3
2 further including at least one tertiary divider
3 removably disposable between said at least one
4 secondary divider and said interior wall surface.

1 6. The truck bed divider system of claim 3
2 wherein said means for frictionally engaging comprises
3 a bracket having a wall engaging side and a divider
4 body receiving side.

- 11 -

1 7. The truck bed divider system of claim 6
2 wherein said bracket and said divider body are
3 adjustably interrelated whereby said bracket may be
4 adjusted outwardly or inwardly relative said divider
5 body.

1 8. The truck bed divider system of claim 7
2 wherein said bracket has a channel axially defined
3 therein for receiving a portion of said divider body,
4 said channel having at least one fastener aperture
5 defined therein.

1 9. The truck bed divider system of claim 8
2 wherein said portion of said divider body received
3 within said channel has at least one fastener slot
4 axially defined therein.

1 10. The truck bed divider system of claim 9
2 further including a fastener assembly for disposition
3 through said fastener aperture and said fastener slot
4 for fixing the position of said bracket and said body
5 relative one another.

1 11. The truck bed divider system of claim 10
2 wherein said fastener assembly includes a bolt member
3 and a nut member, said bolt member having an eye
4 portion.

1 12. The truck bed divider system of claim 7
2 wherein:
3 said secondary divider includes a secondary
4 divider body; and
5 said means for engaging said secondary divider
6 comprises a bracket having a slotted end, said bracket
7 being fitted to said secondary divider body.

- 12 -

1 13. The truck bed divider system of claim 12
2 wherein said divider body has slots defined therein for
3 removably and slottingly receiving said slotted end of
4 said secondary divider bracket.

1 14. The truck bed divider system of claim 13
2 wherein said secondary divider bracket is adjustably
3 interrelated to said secondary divider body.

1 15. The truck bed divider system of claim 14
2 wherein said primary divider body has axially provided
3 thereupon at least one shelf-engageable bracket.

1 16. The truck bed divider system of claim 15
2 wherein said secondary divider body has axially
3 provided thereupon at least one shelf-engageable
4 bracket.

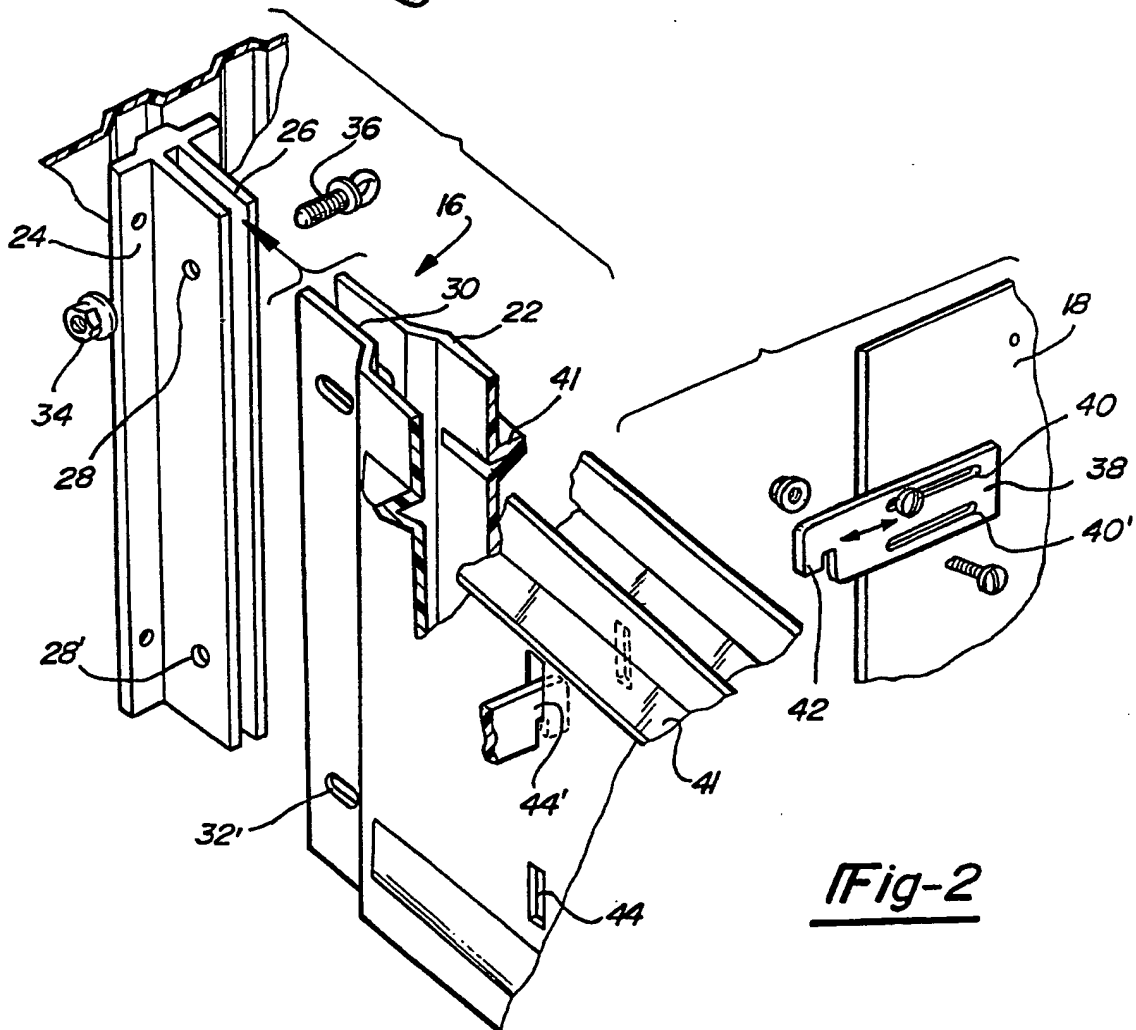
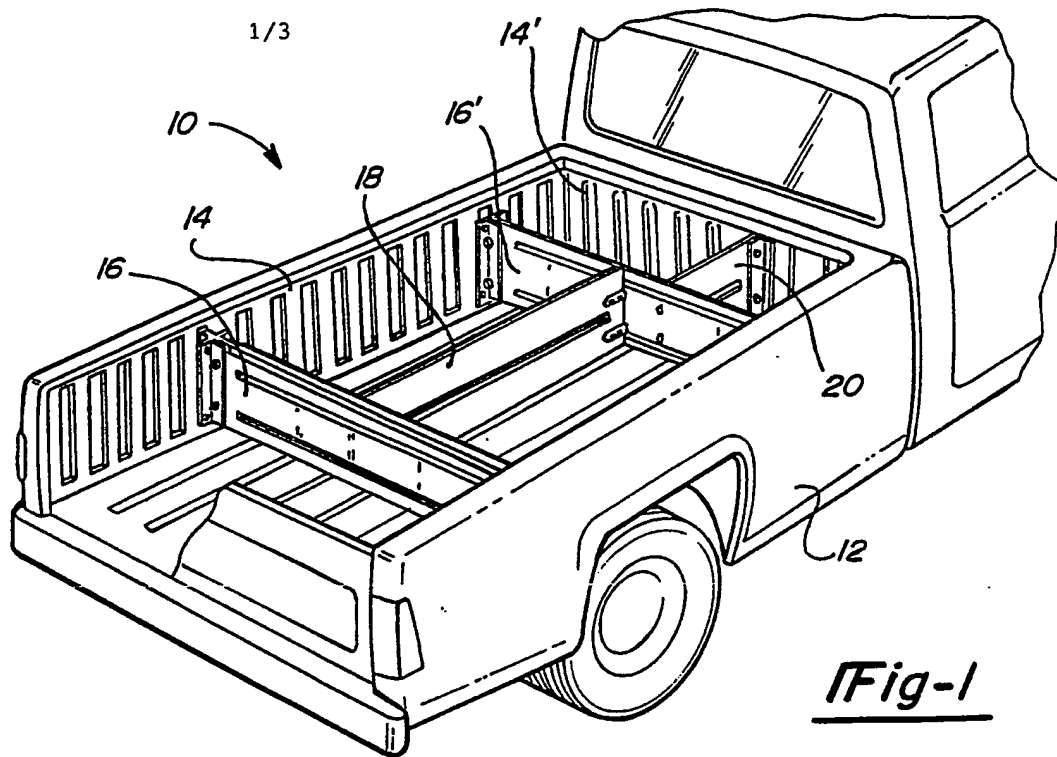
1 17. The truck bed divider system of claim 7
2 wherein said primary divider body is composed of a
3 first half and a second half, said halves defining an
4 internal body cavity.

1 18. The truck bed divider system of claim 17
2 further including at least one operable section cover
3 for placement over selected ones of the segments
4 defined by said dividers.

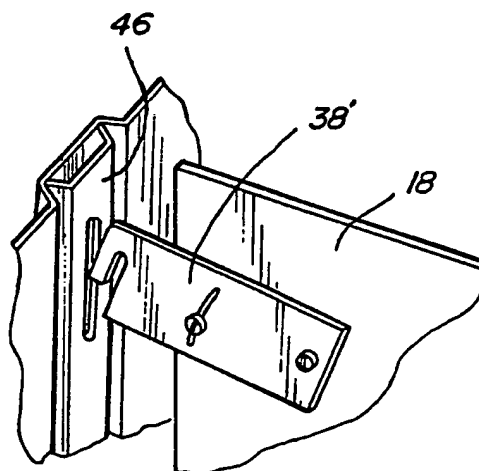
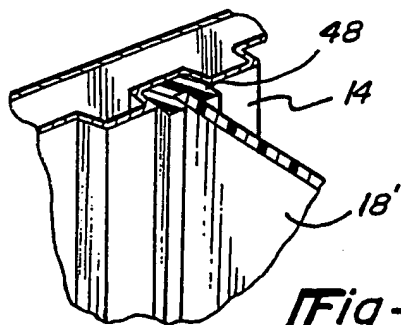
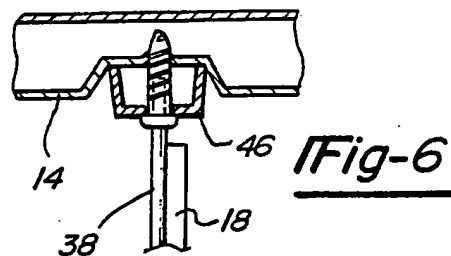
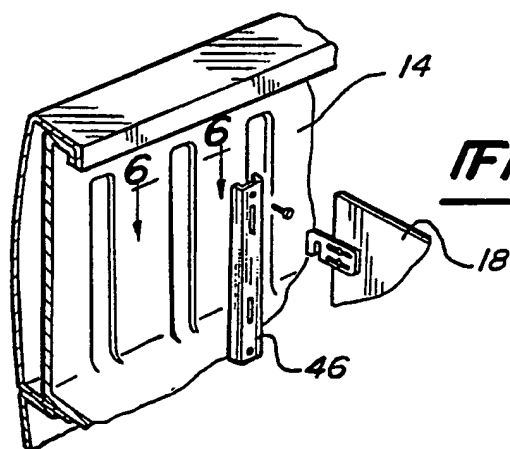
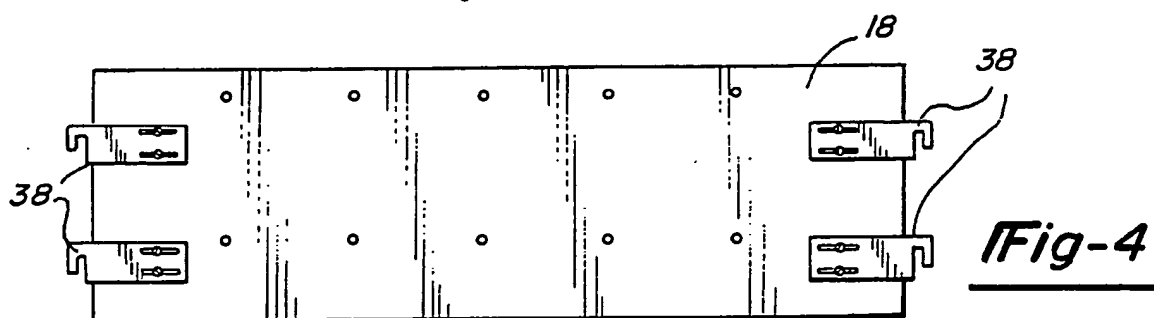
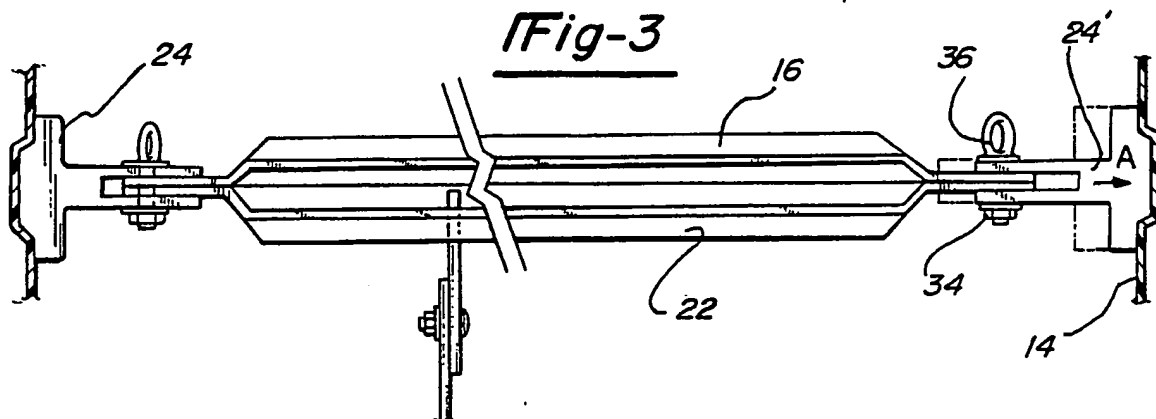
1 19. The truck bed divider system of claim 1
2 wherein said means for releasably engaging comprises at
3 least one pivotable bracket having a slotted end, said
4 bracket being movable from a first unlocked position to
5 a second locked position whereby said primary divider
6 is slottingly locked therein.

- 13 -

1 20. A truck bed divider system for dividing
2 the interior space of a vehicle bed into two or more
3 segments, said system comprising:
4 At least one primary divider;
5 said primary divider being removably
6 interfittable between opposing interior wall surfaces
7 of said truck bed;
8 means for frictionally engaging said primary
9 divider against said interior wall surfaces; and
10 at least one secondary divider interfittable
11 between one interior wall surface and said primary
12 divider.



2/3



3/3

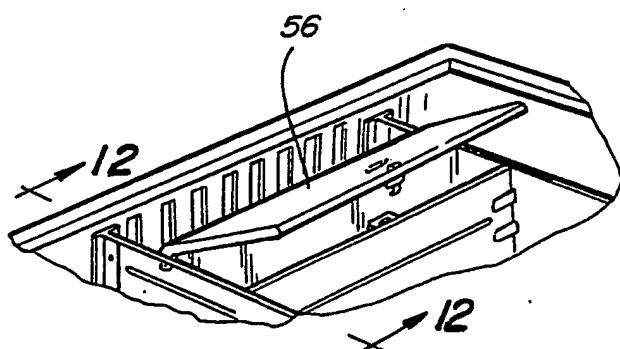
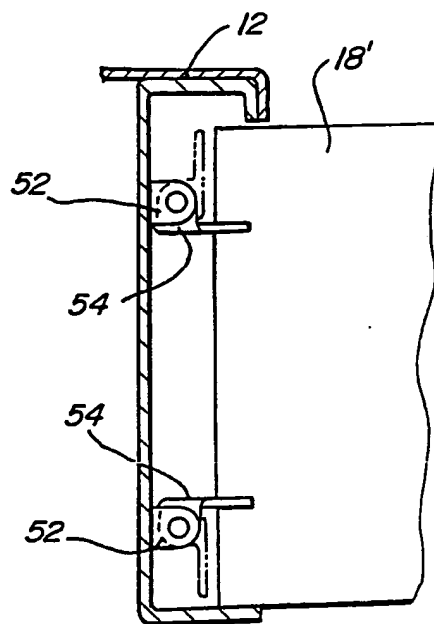
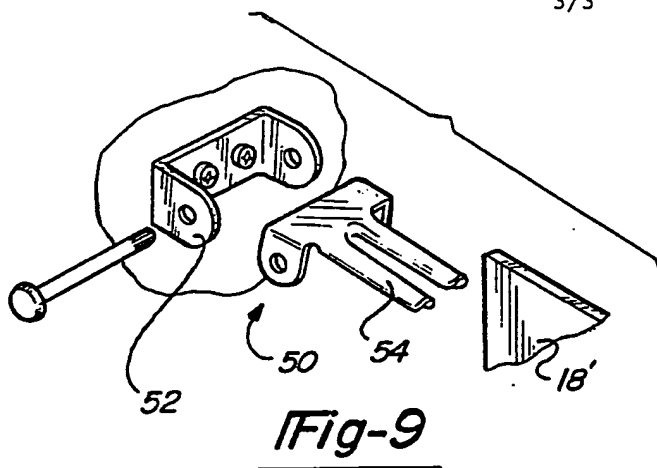


Fig-11

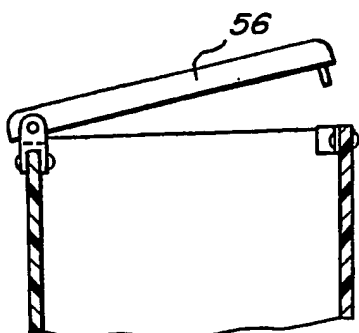


Fig-12

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US91/03043

| | | |
|--|--|---|
| I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) * | | |
| According to International Patent Classification (IPC) or to both National Classification and IPC | | |
| IPC (5): B60P 7/06 | | |
| U.S. CL: 410/122,127,140,151 296/39.2 220/533,551 | | |
| II. FIELDS SEARCHED | | |
| Minimum Documentation Searched ⁷ | | |
| Classification System | Classification Symbols | |
| U.S. CL | 410/89,121,122,127,129,130,132,140-148,150,151 296/39.2 220/532-546,551,552 | |
| Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸ | | |
| III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹ | | |
| Category ⁹ | Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹² | Relevant to Claim No. ¹³ |
| X Y | US, A, 4,722,165 (BARTKUS) 20 September 1988 Figures 1 and 19. | 1-7,12,17 8-11,18 |
| X Y | US, A, 4,343,578 (BARNES) 10 August 1982 Figure 1. | 1,2 3-12,17,18 |
| X | US, A, 4,737,056 (HUNT) 12 April 1988 Figure 7. | 20 |
| X | US, A, 4,887,947 (BOTT) 19 December 1989 Figures 1 and 4. | 1,2 |
| X | US, A, 4,085,685 (STONE) 25 April 1978 Figure 1. | 1,19 |
| Y | US, A, 2,912,939 (MINER JR ET AL) 17 November 1959 Figure 5. | 8-11 |
| Y | US, A, 4,943,194 (AGUILAR) 24 July 1990 Figure 1. | 18 |
| A | US, A, 2,214,042 (BURDICK) 10 September 1940 | |
| A | US, A, 3,431,015 (GIGER) 17 April 1990 (continued on extra sheet) | |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>* Special categories of cited documents: ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </div> </div> | | |
| IV. CERTIFICATION | | |
| Date of the Actual Completion of the International Search | | Date of Mailing of this International Search Report |
| 14 JUNE 1991 | | 23 JUL 1991 |
| International Searching Authority | | Signature of Authorized Officer |
| ISA/US | | ROBERT S. KATZ |

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

| | |
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| A | US, A, 4,889,253 (SCHMULIAN ET AL) 26 December 1989 |
| A | US, A, 4,079,677 (VANDERGRIF ET AL) 21 March 1978 |
| A | US, A, 3,352,595 (BEZLAJ) 14 November 1967 |
| A | US, A, 4,091,745 (PATCH) 30 May 1978 |
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| A,P | US, A, 4,961,677 (DOWNWARD JR) 09 October 1990 |
| A,P | US, A, 4,986,706 (WILLIAMS JR) 22 January 1991 |

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE¹

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers _____, because they relate to subject matter¹² not required to be searched by this Authority, namely:

2. ☐ Claim numbers _____, because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out¹³, specifically:

3. ☐ Claim numbers _____, because they are dependent claims not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING²

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:
3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:
4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

- ☐ The additional search fees were accompanied by applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

| III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET) | | |
|--|--|----------------------|
| Category * | Citation of Document, with indication, where appropriate, of the relevant passages | Relevant to Claim No |
| A | CA, A, 580,720 (NAMP) 04 August 1959 | |